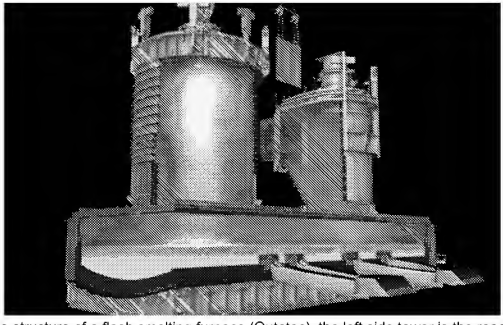
REMARKS

The examiner has rejected claims 27-34 under 35 USC 103, relying on Okamoto et al and Frundl et al as the principal combination of references. In connection with the rejection of claim 27, the examiner has relied on Frundl et al only as disclosing a sleeve-type burner. Accordingly, the examiner relies on Okamoto et al as disclosing all the other features of claim 27.

Claim 27 recites a suspension smelting furnace installation comprising a suspension smelting furnace defining a vertical reaction shaft for roasting and smelting dried concentrates in suspension.

Claim 27 requires that the bin should have an outlet below the top level of the reaction shaft and that a pneumatic conveyor be positioned to receive the fine-grained material from the feed control unit and adapted to transport the fine grained material to the concentrate burner. A feed control unit receives the fine-grained material from the outlet of the bin.

The examiner asserts that FIG. 1 of Okamoto et al discloses a suspension smelting furnace and applicant infers that the examiner takes the position that the furnace 10 disclosed by Okamoto et al is a suspension smelting furnace. Applicant respectfully disagrees. A suspension smelting furnace(or flash smelting furnace) is used to produce matte or metal from finely divided metal concentrates, such as copper, nickel or lead concentrates, typically provided by a concentrate dryer from a concentrate flotation separator. Suspension smelting is carried out using a suspension smelting furnace that comprises a vertical reaction shaft, a settler for collecting molten droplets that have been formed by smelting the dried concentrate in gaseous suspension, and an uptake shaft for removing waste gas and flue dust. These elements are shown in the photograph on the following page.



A principle structure of a flash smelting furnace (Outotec), the left side tower is the reaction shaft, below is the settler section and right side tower is the uptake shaft

Okamoto et al discloses a furnace 10 in which iron oxide particles and coke powder are supplied to a high-temperature flame in which the oxide particles are heated and the coke powder reduces the iron oxide to form metallic iron. Applicant submits that the furnace 10 disclosed by Okamoto et al is not a suspension smelting furnace as that term is understood by those skilled in the art.

In suspension smelting, a suspension of fine-grained oxide and sulfide ores or concentrates in air or oxygen is created, and this suspension is fed downwards in the reaction zone at the lower end of which there may be means for sulfidization or reduction of the suspension. Below the reaction shaft is a settler, or lower furnace, in which there is the main smelt reaction zone in which the bulk of the suspension dissolves in the smelt accumulated in the lower furnace main reaction shaft. At the upper end of the rising-flow zone there are devices for removing the remaining suspension. In the settler, between the main smelt reaction zone and the rising-flow zone, there is a secondary smelt reaction zone in which the residual suspension may at least partially dissolve in smelt before essentially all undissolved residual suspension is fed into the rising flow zone. In the settler there is also a separate smelt settling zone

that communicates at least through the smelt with the main and secondary smelt reaction zones for the separation of slag from matte and metal. Among other things, the furnace of Okamoto et al does not include an uptake shaft.

The examiner argues that in the apparatus of Okamoto et al, "the particulate material is fed to the reaction shaft by air lifting" and refers to column 4, lines 15-22 and 55-62. Neither passage cited by the examiner refers to the iron ore particles being lifted by the air flow. The passages cited by the examiner refer to the particles being supplied to the oxygen burner 12 by using air as a carrier gas. This wording does not suggest that the particles are lifted from a lower elevation to a higher elevation and is entirely consistent with the particles being transported along a horizontal pipe or a pipe sloping downward from the outlet of the iron ore bin to the burner 12.

In view of the foregoing, applicant submits that the subject matter of claim 27 is not disclosed or suggested by the cited references, whether taken singly or in combination. Therefore, claim 27 is patentable and it follows that the dependent claims 28-34 also are patentable.

Respectfully submitted,

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